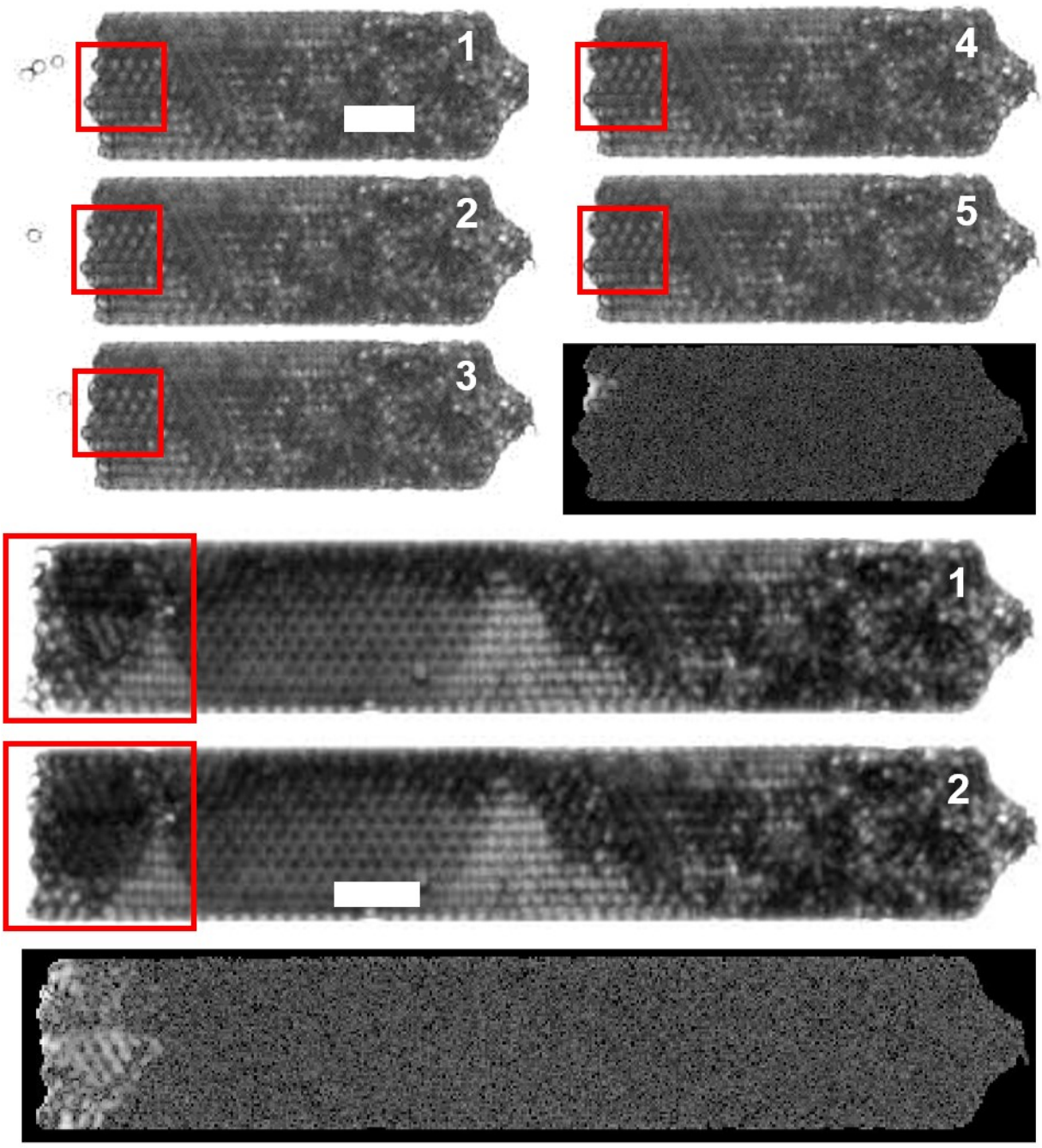
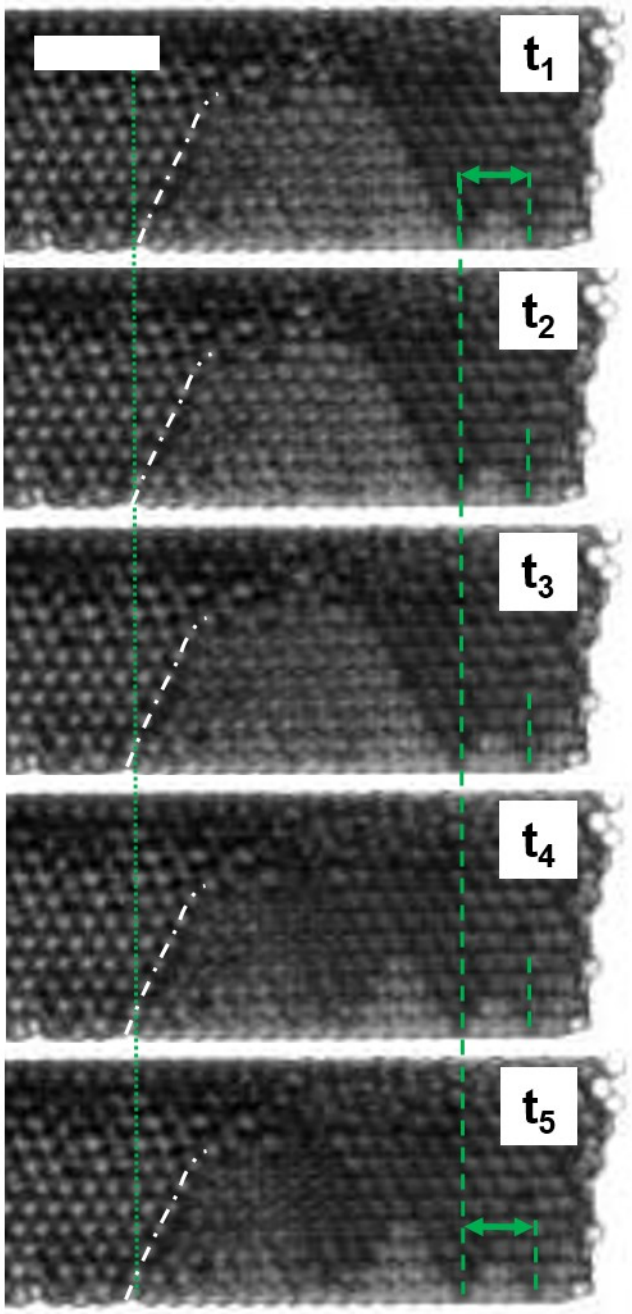
Electronic Supplementary Material (ESI) for Soft Matter.

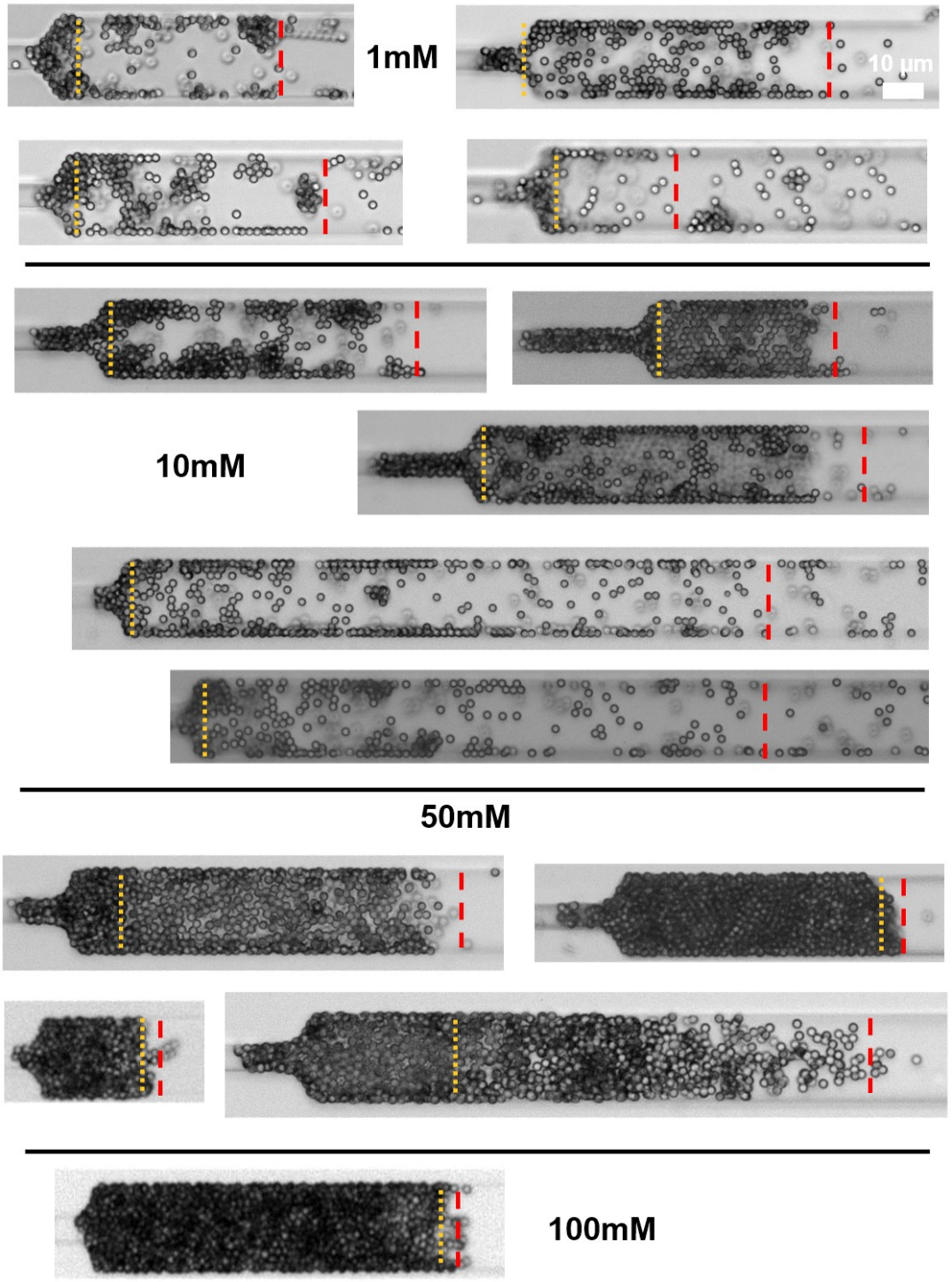
Electronic Supplementary information



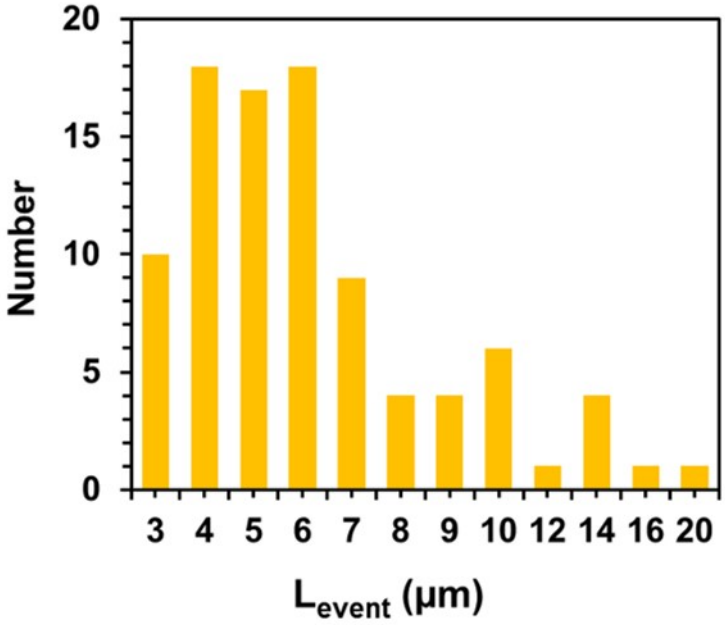
Sup. Figure 1: A small (top) and a large rearrangement event (bottom) that cannot be easily discerned by sight. We provide the images and then the results of the image analysis quantifying each event. In the latter the rearrangement event is in white, taking place within the outlined rectangle in the raw images, while the rest of the accumulation is in grey. The time between each image is 0.01s, the scale bars correspond to 10µm.



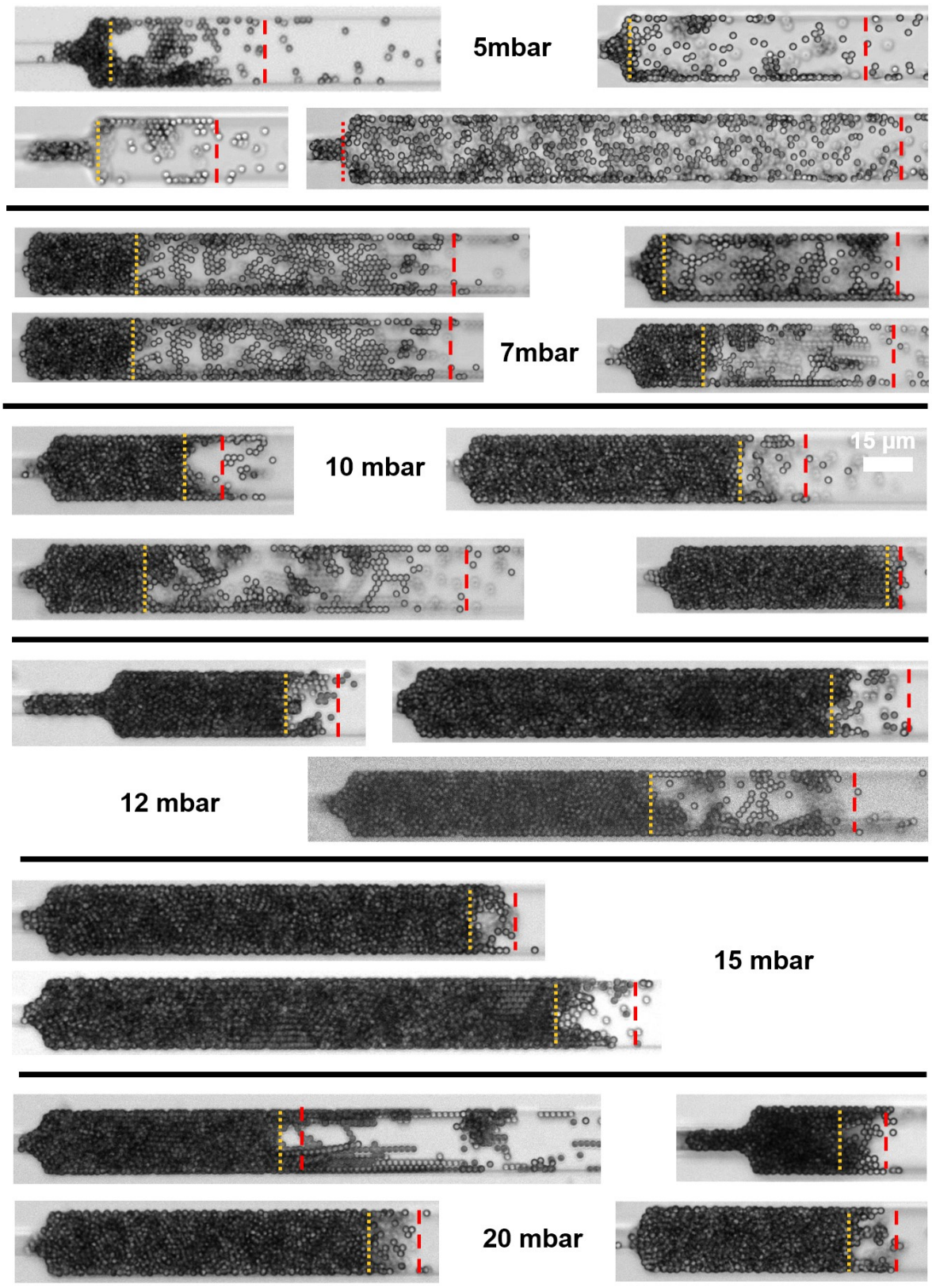
Sup. Figure 2: Compression by the fluid at the rear of the particle accumulation while no new particles are added. The time between each image is 0.1s. The distance between the two dashed lines at the right of the images is constant, indicating that this right part of the accumulation, which starts from the longer dashed line, does not undergo any compression. On the left of each image the position of the dotted line is fixed while the oblique line moves towards the left showing that this left part of the accumulation is compressed. Important rearrangements take place in the middle between the dashed and the dotted lines. Roughly half of the particles on the right hand side of this middle section move vertically in order to be in the same plane as the particles on the right hand side. This vertical motion arises from to the compression of the left side. Scale bar corresponds to 15µm and the flow goes from right to left.



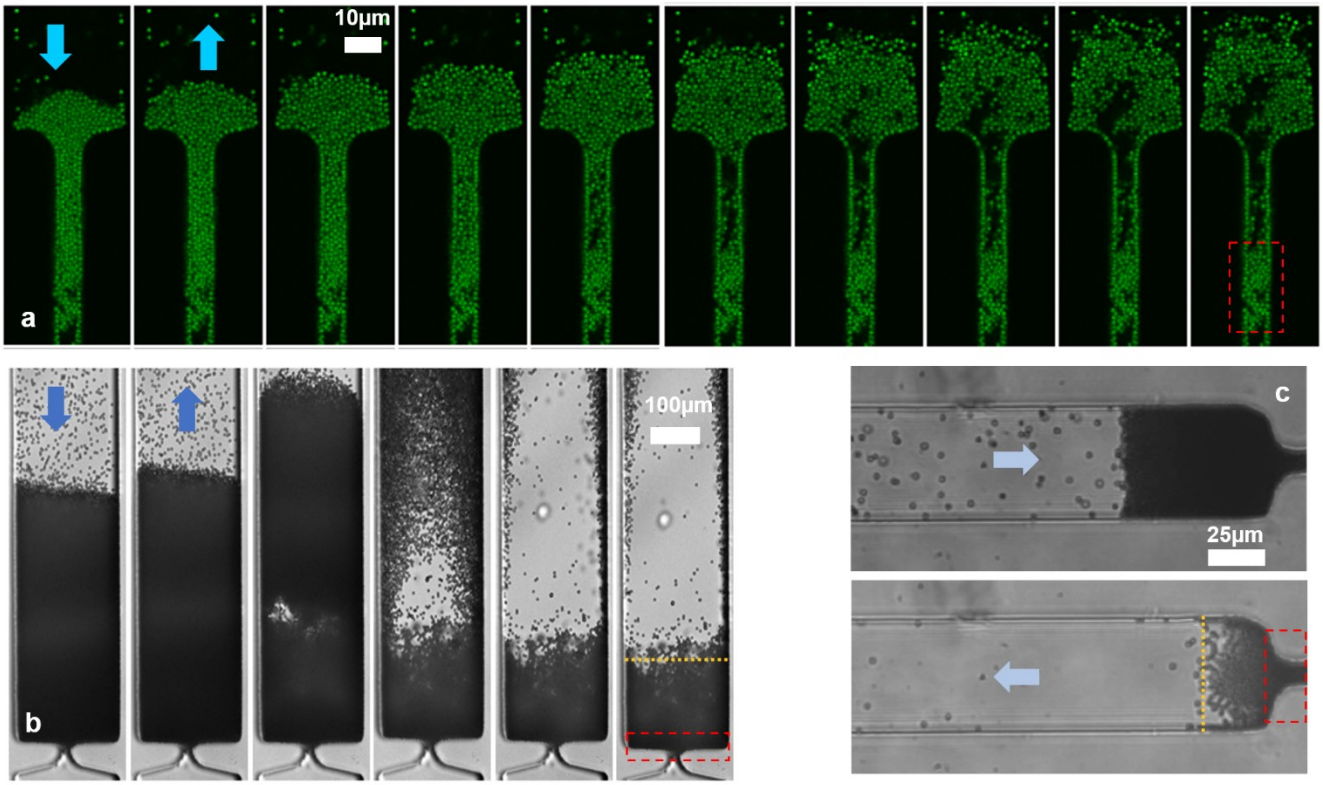
Sup. Figure 3: Final image after the de-clogging of a channel for various ionic strength. The reversal flow direction is from left to right. The dotted lines delimit the end of the cohesive part for each image while the distance between the clog heads and the dashed lines correspond to L_{dep}.



Sup. Figure 4: Histogram of the length of the rearrangement events, L_{event}, with a mean values of 6.9µm for a 2µm suspension with I=1mM.



Sup. Figure 5: Final image after the de-clogging of a channel for various applied pressures. The reversal flow direction is from left to right. The dotted lines delimit the end of the cohesive part for each image while the distance between the clog heads and the dashed lines correspond to L_{dep}.



Sup. Figure 6: (a) Confocal images of a de-clogging experiments for 1.8µm PMMA particles inside a channel with *H*=11µm and *W*=9µm. The particle accumulation was formed at 30mbar (1st image on the left) and we zero the pressure thereafter, from the 2nd image up to the last one on the right. We focus at the middle height of the channel to show that there is no particle in the bulk after de-clogging. De-clogging of a single channel filled with 4µm PS at 35mbar (b) or 2µm PS at 10mbar (c) inside a channel with *H*=50 and 53µm and *W*=200 and 50µm, respectively. In both cases we also zero the pressure, which leads to flow reversal. Dashed rectangles correspond to the clog head while the dotted lines is the end of the deposition zone of particles on the channel surfaces, as in Sup. figure 3 and 5. The arrows point to the flow direction.

2µm

	Single	Doublet	Triplet	Aggregate
No salt	99.73	0.23	0.02	0.03
10mM	98.87	0.90	0.11	0.11
50mM	98.81	1.16	0.04	
100mM	89.78	8.17	1.45	0.60

1.8µm

	Single	Doublet	Triplet	Aggregate
No salt	99.84	0.16		
10mM	99.53	0.32	0.05	0.10
50mM	98.93	0.86	0.11	0.09
100mM	88.00	9.11	1.86	1.02
150mM	86.44	10.91	1.82	0.83
200mM	23.89	20.18	14.73	41.20

Sup. Table: The composition of the accumulations as a percentage for 2µm PS (left) and 1.8µm PS (right) particles for various salt concentrations.